

FIG. 2



METHOD LOAD EVALUATION TABLE

•	301	303 302	304	305 300		
	7					
	METHOD	LOAD EVALUATION/VALUE L1				
		SERVER A (L1A)	SERVER B (L1B)	SERVER C (L1C)		
	GET	6	4	2		
	HEAD	3	2	1		
	POST	9	6	3		
	PUT	6	4	2		
1	DELETE	9	6	3		
	TRACE	3	2	1		
1	OPTIONS	3	2	1		

FIG. 4

CONTENTS DATA TABLE 401 402 403 400 PROBABILITY THAT IT WILL BE IN THE CLIENT-SIDE CACHE CONTENTS SIZE (BYTES) a.htm1 10 90 b.htm1 31 90 70 c.htm1 599 a.gif 25 50 30 b.gif 1.008 5 c.xls 5 d.pdf 19,283

FIG. 5

501

503 502

DATA SIZE LOAD EVALUATION TABLE

504

505 500

λ	1 2		/ ~/
0.75 (0.750)	LOAD I	EVALUATION VALUE L2	
SIZE (BYTES)	SERVER A (L2A)	SERVER B (L2B)	SERVER C (L2C)
1~50	3	2	1
50~100	6	4	2
100~200	9	6	3

#### DYNAMIC CONTENTS GENERATION PROGRAM LOAD EVALUATION TABLE 600 601 602 603 AVERAGE DATA SIZE (BYTES) LOAD EVALUATION VALUE L3 **PROGRAM** SERVER A (L3A) SERVER B (L3B) SERVER C (L3C) 500 SEARCH1 20 SEARCH2 10 876 CALC<sub>1</sub> 72 1

# FIG. 7

605

606

604

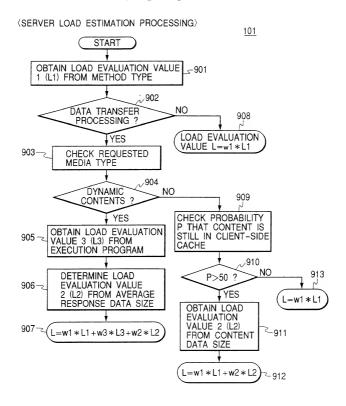
WEIGHT TABLE

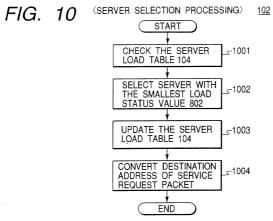
70	0	701 √		702 /
LO EV VA		JATION L	WEIG	HT W
	L	_1	W	1
	L2		W	2
	Ĺ	.3	W	3

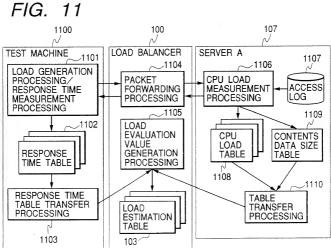
# FIG. 8

SERVER LOAD MANAGEMENT TABLE

104 801	802
SERVER	LOAD STATUS
Α	
В	
C	

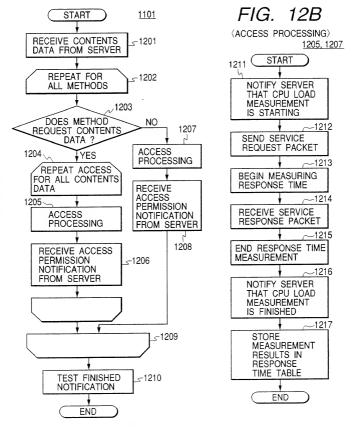


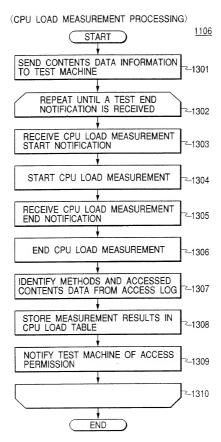




#### FIG. 12A

(LOAD GENERATION PROCESSING/ RESPONSE TIME MEASUREMENT PROCESSING)





8/12

FIG. 14

RESPONSE TIME TABLE (METHOD TABLE)

1401	1402 1	400
7	~	J
METHOD	RESPONSE TIME	
GET		]
HEAD		
POST		
PUT		1
DELETE		1
TRACE		1
OPTIONS	1	1

FIG. 15

RESPONSE TIME TABLE (METHOD TABLE)

METHOD RESPONSE TIME
a.html
b.html
c.html
---a.gif
b.gif
c.xls
d.pdf

FIG. 16

RESPONSE TIME TABLE
(DYNAMIC CONTENTS GENERATION PROGRAM TABLE)

1601	1602 1	600
~	٧	√ 1
	RESPONSE TIME	1
SEARCH1		1
SEARCH2		1
CALC1		]

9/12

FIG. 17

CPU LOAD TABLE (METHOD TABLE)

4700

1/01	1/02	1/00
٧	٧	$T_{J}$
METHOD	CPU LOAD	
GET		_
HEAD		
POST		
PUT		
DELETE		_
TRACE		_
OPTIONS		

FIG. 18

CPU LOAD TABLE
(DYNAMIC CONTENTS GENERATION PROGRAM TABLE)

1801 1802 1803 1800

PROGRAM CPU LOAD AVERAGE DATA SIZE

SEARCH1

SEARCH2

SEARCH2
CALC1

FIG. 19

CONTENTS DATA SIZE TABLE

```
(LOAD EVALUATION VALUE
FIG. 20
                                                  1105
                        GENERATION PROCESSING
                                 START
                  RECEIVE THE RESPONSE TIME TABLE 1102
        2001----
                  FROM THE TEST MACHINE 1101
           RECEIVE THE CPU LOAD TABLE 1108 AND THE CONTENTS
    2002 ---
           DATA SIZE TABLE 1109 FROM THE SERVER
                GENERATION/UPDATE PROCESSING FOR THE
        2003~~
                METHOD LOAD EVALUATION TABLE 300
                GENERATION / UPDATE PROCESSING FOR THE
        2004-
                CONTENTS DATA TABLE 400
                GENERATION/UPDATE PROCESSING FOR THE
        2005-
                DATA SIZE LOAD EVALUATION TABLE 500
  2006 GENERATION/UPDATE PROCESSING FOR THE DYNAMIC CONTENTS
       GENERATION PROGRAM LOAD EVALUATION TABLE 600
                                  END
                (GENERATION/UPDATE PROCESSING FOR THE)
FIG. 21
                METHOD LOAD EVALUATION TABLE 300
                                 START
       LOOK UP THE METHOD FIELD 1401 IN THE METHOD TABLE 1400 OF
 2101- THE RESPONSE TIME TABLE 1102 OR THE METHOD FIELD 1701 OF
       THE METHOD TABLE 1700 OF THE CPU LOAD TABLE 1106, AND
       GENERATE AND UPDATE THE METHOD FIELD 301 ENTRIES
            CONVERT ENTRY VALUES IN THE RESPONSE TIME FIELD
 2102~
            1402 TO STANDARD DEVIATION VALUES
            CONVERT ENTRY VALUES IN THE RESPONSE TIME FIELD
 2103~
            1702 TO STANDARD DEVIATION VALUES
        CALCULATE LOAD EVALUATION VALUES FOR EACH METHOD
        USING (STANDARD DEVIATION OF RESPONSE TIME)×(RESPONSE
        TIME WEIGHT)+(STANDARD DEVIATION OF CPU LOAD)×(CPU LOAD
 2104-2
        WEIGHT), AND GENERATE AND UPDATE ENTRIES IN THE LOAD
        EVALUATION VALUE FIELD 302
                                  FND
```

11 / 12

## FIG. 22

(CONTENTS DATA TABLE 400 GENERATION)
/UPDATE PROCESSING 2004

START

LOOK UP THE CONTENTS FIELD 1901 OF THE CONTENTS DATA SIZE TABLE 1109 AND GENERATE / UPDATE ENTRIES IN THE CONTENTS FIELDS 401

s-2201

LOOK UP THE DATA SIZE FIELD 1902 OF THE CONTENTS DATA SIZE TABLE 1109 AND GENERATE/UPDATE ENTRIES IN THE SIZE FIELD 402

END

### FIG. 23

( DATA SIZE LOAD EVALUATION TABLE 500 ) GENERATION/UPDATE PROCESSING 2005

START

LOOK UP THE CONTENTS DATA SIZE TABLE 1109
TO GROUP THE TIME TABLE 1102 (CONTENTS DATA
TABLE 1500) ENTRIES ACCORDING TO THEIR
ASSOCIATED SIZE FIELD 501 ENTRIES IN THE DATA
SIZE LOAD EVALUATION TABLE

DETERMINE AVERAGE VALUE OF THE RESPONSE JUME FIELD 1500 FOR EACH OF THE GROUPS

CONVERT THE AVERAGES DETERMINED AT STEP 2303 2301 TO STANDARD DEVIATION VALUES

USE THE STANDARD DEVIATIONS DETERMINED AT STEP 2303 AS THE LOAD EVALUATION VALUE L2 FOR THE SIZE FIELD 501 ENTRIES

END

( DYNAMIC CONTENTS GENERATION PROGRAM LOAD EVALUATION ) TABLE 600 GENERATION/UPDATE PROCESSING 2006

